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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/562,798

12/29/2005

Toru Maeda

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EXAMINER

HARRIS, GARY D

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

09/02/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/562,798	Applicant(s) MAEDA ET AL.	
	Examiner GARY D. HARRIS	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3-9, 11-16 is/are pending in the application.
- 4a) Of the above claim(s) 8 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-7 and 9-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/17/2009 has been entered.

Response to Arguments

Applicant's arguments filed 06/17/2009 have been fully considered but they are not persuasive. Kaneko et al. US 7,285,329 clearly discloses a lower layer of nonferrous metal and an upper oxide layer (insulating). Whether or not, Kaneko '329 is aware of a gettering effect is moot as the structure would meet the claimed limitation since the iron particle (innermost layer) may be an oxide including a silicon oxide (Col. 8, Line 4-15). Applicant argues that the soft magnetic material of Ueta '626 does not have the claimed structure found in amended claim one. However, the structure of Ueta '626 would necessarily have an oxide of a nonferrous metal such as aluminum will oxidize when exposed to air. Applicant argues that Ueta '626 in (Paragraph 41) utilizes an aluminum containing phosphate or phosphoric acid compound (AlPO) not an oxide of a nonferrous metal formed on the surface of the metal powder. Argument is that the aluminum in the aluminum phosphate will not oxidize by itself. However, aluminum by itself will oxidize

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on its own in its pure form when exposed to other than an inert environment. Ueta discloses aluminum and aluminum oxide. Applicant is using a phosphorous compound (as in claim four) in combination with the oxide, which would appear to support the Examiner's position. With regard to oxide not being present in AlPO, Ueta '626 discloses the aluminum in the coating material may be a compound selected from among others, aluminum oxide. Examiner interprets the claimed structure to be a "functional equivalent" with respect to the outer oxide layer and the inner nonferrous oxide layer. With regard to the outer layer including oxygen and the inner layer including an oxide film of nonferrous metal, the reference doesn't teach any unexpected performance and/or results regardless of which layer has the control and/or resulting properties. It has been held that where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the burden of proof is shifted to applicant to show that prior art products do not necessarily or inherently possess characteristics of claimed products where the rejection is based on inherency under 35 USC §102 or on prima facie obviousness under 35 USC §103, jointly or alternatively. *In re Best, Bolton, and Shaw*, 195 USPQ 430. (CCPA 1977). Keneko '329 disclose oxides of nonferrous metals including aluminum (Col. 8, Line 4-15). In conclusion, applicant's process is related to utilizing the Sol-Gel process to coat particles which is known in the art to produce uniform thin insulating coatings on particles.

Claims 1, 3-7 & 9-15 are examined in the instant application as follows:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3, 4, 6, 7, 9, 12, 14 & 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Ueta et al. 2004/0126609.

As to Claim 1 & 9, Ueta et al. 2004/0126609 discloses an iron powder (particle) coated with an insulating substance (Paragraph 41) which include a metal compound containing aluminum (Paragraph 75). Ueta et al. '626 discloses that the ferromagnetic powder is coated with a phosphate of aluminum and may include aluminum oxide (Paragraph 58) (a nonferrous metal) and further discloses the metal powder comprises an oxide (Paragraph 58) a metal surfactant and a silane compound (Paragraph 62). Examiner takes the position that aluminum powder in its pure form will oxidize once it is exposed to air, unless it is kept in an oxygen free environment. Ueta et al. '609 does not disclose an absolute value of heat generated when a primary compound is produced by a reaction between said at least one selected from the group consisting of aluminum, chromium, silicon, titanium, vanadium and nickel said nonferrous metal and at least one of oxygen and carbon included in said insulating upper film is greater than an absolute value of heat generated when a primary compound is produced by a reaction between iron and said at least one of oxygen and carbon. However, examiner

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interprets that this would necessarily be an inherent characteristic of the coating as both applicant and Ueta et al. disclose an iron powder with a layer of aluminum. The aluminum layer would oxidize in the presence of air producing an aluminum oxide layer; thereby producing applicant's insulating upper film containing at least one of carbon and oxygen. The oxide layer is produced by a reaction with the atmosphere and would inherently be present and have a similar absolute value of heat generated. It has been held that where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the burden of proof is shifted to applicant to show that prior art products do not necessarily or inherently possess characteristics of claimed products where the rejection is based on inherency under 35 USC §102 or on prima facie obviousness under 35 USC §103, jointly or alternatively. *In re Best, Bolton, and Shaw*, 195 USPQ 430. (CCPA 1977).

Additionally, the absolute value of the heat generated when a primary compound is oxygen and at least one selected from aluminum, chromium, silicon, titanium, vanadium and nickel is considered a product by process limitation. The heat generated when the primary compound is produced by a reaction would initially depend on the raw materials (and any alloying or contaminants i.e. carbon) that would directly effect the heat of reaction. This is critical in that application is for a product and not a method of producing the product. The patentability of a product is independent of how it was made. *Ex parte Jungfer* 18 USPQ 1796, 1800 (BPAI 1991); *Brystol-Myers Co. v. U.S. International Trade Commission* 15 USPQ 2d 1258 (Fed. Cir. 1989). The burden is on

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applicants to show product differences in product by process claims. In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP 2113.

As to Claim 4 & 12, Ueta et al. 2004/0126609 teaches a multilayer coating comprising aluminum and phosphorous compounds (Paragraph 88).

As to Claim 6 & 14, Ueta et al. 2004/0126609 discloses the use of coated powder used as a magnetic core (dust core) (Paragraph 111).

As to Claim 7 & 15, Ueta et al. 2004/0126609 discloses using polymeric resistant films and organic substances such as epoxy resin, phenolic resin, silicone resin, amide resin, and (Paragraph 108) and discloses the use of polyamide (see table 1) (Paragraph 134-135). Ueta '609 teaches molding the particles together (Paragraph 119 & 120) and would meet the limitations of the claim.

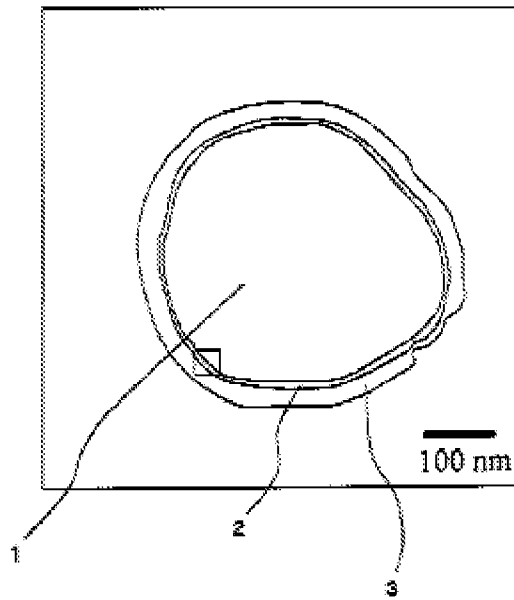
(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1, 3-9, & 11-15 rejected under 35 U.S.C. 102(a) as being anticipated by Kaneko et al. US 7,285,329.

As to Claim 1, 3, 5, 11 & 13 Kaneko et al. US 7,285,329 discloses an iron powder inner core (particle) (Col. 8, Line 28-33) coated with an innermost layer (i.e. applicant's lower film) utilizing a carbon or nitride and consisting of Si, V, Ti, Al, Nb, Zr, and Cr. The layer thicknesses are controlled by adding electrolyte to the solution and have a

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preferred thickness of 5 to 400 nm for the silicon oxide layer depending on the desired saturation magnetization (Col. 13, Line 39-50). The layer thickness of the inner carbon layer is less than 100nm (Col. 3, Line 38-41). Kaneko et al. '329 illustrate a ferromagnetic particle with a multilayered coating where 1= iron core, 2 = carbon layer and 3= silicon oxide layer as shown below:



Additionally Kaneko et al. '329 discloses the film next to the iron particle (innermost layer) may be an oxide including a silicon oxide (Col. 8, Line 4-15).

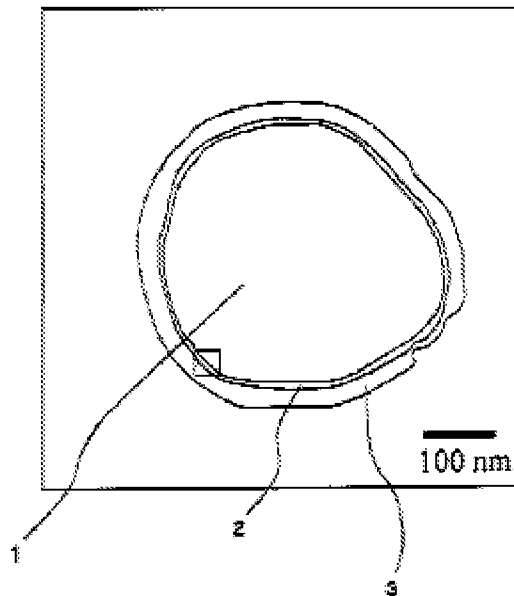
As to Claim 4 & 12, Kaneko et al. '329 discloses the use of silicon alkoxide and hydrolyzing alumina, titania, and zirconia (Col. 11, Line 37-62).

As to Claim 6 & 14, Kaneko et al. '329 discloses a metal core that would be capable of being used as a dust core (Col. 1, Line 1-64).

Claim Rejections - 35 USC § 103

5. Claims 3, 5, 11 & 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueta et al. 2004/0126609 as applied to claim 1 & 9 above, and further in view of Kaneko et al. US 7,285,329.

As to Claim 3, 5, 11 & 13 Ueta et al. 2004/0126609 does not disclose the thicknesses of the outer and inner layers. However, Kaneko et al. US 7,285,329 discloses an iron powder inner core (particle) (Col. 8, Line 28-33) coated with an innermost layer utilizing a carbon or nitriding and consisting of Si, V, Ti, Al, Nb, Zr, and Cr. The layer thicknesses are controlled by adding electrolyte to the solution and have a preferred thickness of 5 to 400 nm depending on the desired saturation magnetization (Col. 13, Line 39-50). The layer thickness of the inner carbon layer is less than 100nm (Col. 3, Line 38-41). Kaneko et al. '329 illustrate a ferromagnetic particle with a multilayered coating where 1= iron core, 2 = carbon layer and 3= silicon oxide layer as shown below:



These layers would be optimized by one skilled in the art by varying the concentration and time in the electrolyte solution and would be a results effective variable MPEP 2144.05 that would be optimized by one of ordinary skill in the art through routine experimentation to adjust the saturation magnetization of the desired particle.

6. Claims 7 & 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko et al. US 7,285,329 as applied to claims 1 & 9, and further in view of Ueta et al. 2004/0126609.

As to Claims 7 & 15, Kaneko et al. 329 discloses the use of resin layers and the use of polystyrene (Col. 13, 14, Line 57-67, 1-3) but does not disclose a polyethylene resin, a silicone resin, a polyamide resin, a polyimide resin, a polyamide imide resin, an

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epoxy resin, a phenolic resin, an acrylic resin and a polytetrafluoroethylene. However, Ueta et al. 609 discloses using polymeric resistant films and organic substances such as epoxy resin, phenolic resin, silicone resin, amide resin, and (Paragraph 108) and discloses the use of polyamide (see table 1) (Paragraph 134-135). It would have been obvious to select a resin from the list of those disclosed by Ueta '609 in order to utilize the advantages of a polymeric resistant film. Additionally, the polymeric layer would be obvious to modify by one of ordinary skill in the art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GARY D. HARRIS whose telephone number is (571)272-6508. The examiner can normally be reached on 8AM - 5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Ruthkosky can be reached on 571-272-1291. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/G. D. H./ Gary D. Harris
Examiner, Art Unit 1794

/Kevin M Bernatz/
Primary Examiner, Art Unit 1794

August 31, 2009